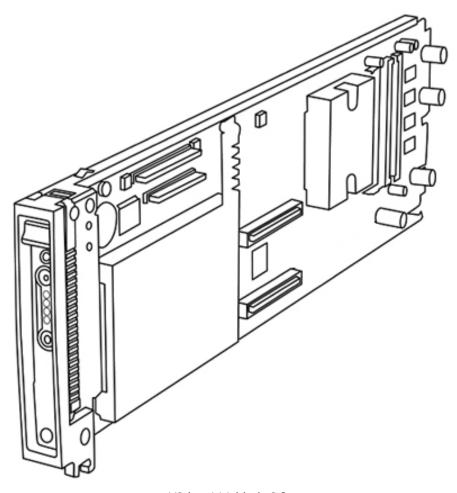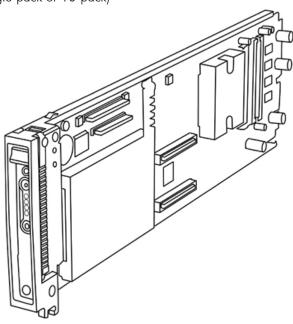*Overview*

HP bc1000 blade PC

At a Glance

- 1.0-GHz Transmeta Efficeon TM8000
- 40-GB Ultra ATA/100 5400 rpm hard drive
- 512-MB DDR SDRAM PC2700 (333-MHz) expandable to 1024 MB (2 SODIMM slots)
  (NOTE: 32 MB of system RAM is reserved for processor usage.)
- Two Broadcom 5705F 10/100 Integrated Network Controllers. NIC 1 is compliant with PXE (Pre-boot execution Environment)
- Connector for graphics diagnostics card
- Blade PCs protected by HP Services, including a limited three-year parts warranty with optional service uplifts available
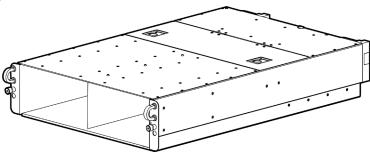
Overview

Configuration Steps

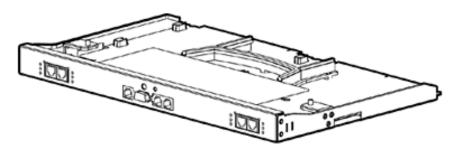For a complete configuration of the HP bc1000 blade PC system, you need:

1. HP bc1000 blade PC (sold in a single-pack or 10-pack)

2. HP e-Class Blade PC Enclosure (each can hold up to 20 blade PCs). The enclosure comes bundled with 20 licenses for the ProLiant Essentials Rapid Deployment Pack.

3. C-GbE Interconnect Switch (with 4 10/100/1000T Gigabit Ethernet RJ45 uplinks for up to 40-to-1 network cable reduction).

QuickSpecs

Standard Features

HP bc1000 blade PC

Processor	One Transmeta Efficeon TM8000 1.0-GHz processor, integrated North Bridge with 400-MHz Hyper Transport South Bridge interface	
Cache Memory	1024K L2	
Chipset	ALi M1563M South Bridge NOTE: For more information regarding Acer Labs Inc, please see the following URL: http://www.ali.com.tw/.	
Memory	Standard	512-MB DDR SDRAM PC2700 (333-MHz) (1x512 MB SODIMM) (NOTE: 32 MB of system RAM is reserved for processor usage.)
	Maximum	1024 MB (2 SODIMM slots total)
Network Controller	Two 5705F 10/100 Integrated Network Controllers. NIC 1is compliant with PXE	
Internal Storage	One 40-GB Ultra ATA/100 5400 rpm hard drive	
Industry Standard Compliance	ACPI 1.0b; ANSI C63.4 - 1992; C.I.S.P.R. Pub 22; CFR 47, Part 15; EN 55022; EN 55024; EN 60950: 2000; ICES-003; IEC 61000-4, Section 2-6, 8, 11; IEC 730-1; IEC 801, Part 2; IPC-A-610; PC2700; PCI 2.3; PXE 2.1; SPD 1.2B; UL 94; UL 796; USB 1.1	
Manageability	HP Systems Insight Manager ROM Based Setup Utility (RBSU) Automatic System Recovery (ASR) System Software Manager (SSM) DOS-based replicated setup utility (REPSET) Unit ID LED	
High Availability	Robust boot block recovery ROM F5 auto roll over to new blade Dual network communication paths	
Security	Administrator's password	
OS Support	Microsoft® Windows® XP Pro with Service Pack 1a	

Standard Features

HP e-Class Blade PC Enclosure (sold separately)

Rack Capability   Mounts in HP 10000 and 9000 series, HP System-E, as well as third-party, and Telco racks. Rack mounting hardware for HP and third-party racks ships standard with each blade enclosure. Telco rack-mounting hardware is a separately available option kit.

Rack Airflow Requirements   The increasing power of new high-performance processor technology requires increased cooling efficiency for rack-mounted blade PCs. The HP 10000 Series Racks provide enhanced airflow for maximum cooling, allowing these racks to be fully loaded with blade PCs using the latest processors.

CAUTION: If a third-party rack is used, observe the following additional requirements to ensure adequate airflow and to prevent damage to the equipment:

- Front and rear doors: If your 42U rack includes closing front and rear doors, you must allow 5,350 square cm (830 square inches) of hole evenly distributed from top to bottom to permit adequate airflow (equivalent to the required 64 percent open area for ventilation).
- Side: The clearance between the installed rack component and the side panels of the rack must be a minimum of 7 cm (2.75 inches).

CAUTION: Always use blanking panels to fill all remaining empty front panel U-spaces in the rack. This arrangement ensures proper airflow. Using a rack without blanking panels results in improper cooling that can lead to thermal damage.

NOTE: Please consult the Setup & Installation Guide for the blade PC for additional details.

Enclosure includes   3U high rack-mountable chassis with 20 blade PC bays
Rack mounting hardware for HP, Compaq-branded and third-party racks
Rear bay for Interconnect Switch for network cable management
Two (2) Diagnostic Adapters (see features following) for connecting keyboard, video, mouse and other devices locally to individual blade PCs
ProLiant Essentials Foundation Pack licenses for 20 Blade PCs (see features following), includes the HP Systems Insight Manager and ProLiant Essentials Rapid Deployment Pack CD
Four hot-plug fans
Dual hot-plug power supplies (600 watts each), power cords
Blade PC blanks (to fill 19 of the 20 blade PC bays)
Null-modem cable for serial connection to the Integrated Administrator serial "Console" connector
HP Documentation CD

Diagnostic Adapter Interfaces   NOTE: Two Diagnostic Adapters are included with every enclosure.

Blade PC LEDs (6)
PS/2 Mouse
PS/2 Keyboard
VGA monitor (functional only when graphics diagnostics card installed)
Serial RS-232 port
USB 1.1 ports (2)

Standard Features

ProLiant Essentials Foundation Pack Software	HP Systems Insight Manager	Systems Insight Manager helps maximize system uptime and performance and reduces the cost of maintaining the IT infrastructure by providing proactive notification of problems before those problems result in costly downtime and reduced productivity. Insight Manager is easy to set up and provides rapid access to inventory information. http://www.hp.com/go/hpsim/.
	ProLiant Essentials Rapid Deployment Pack	An automated solution for deployment and provisioning, enabling companies to quickly and easily adapt to changing business demands. NOTE: For more information regarding ProLiant Essentials Software, please see the following URL: http://www.hp.com/servers/proliantessentials.
	Interconnect Switch Management System and Utilities	Full featured web-based interface, menu-driven console interface, SNMP-based scripting utility and example scripts, SNMP and RMON MIBs, and TFTP utilities for management of interconnect switch.

C-GbE Interconnect Switch Features (sold separately)

- Provides up to a 40-to-1 reduction in network cables for each blade enclosure using a pair of non-blocking layer 2 switch modules
- Four RJ-45 10/100/1000T Gigabit Ethernet uplinks
- Forty 10/100T Ethernet ports dedicated to blade-to-interconnect switch network communications
- Communicate with all 40 blade PC network controllers through any one uplink connector and the management connector
- Includes Integrated Administrator module (see features following)
- Spanning tree protocol for loop-free path redundancy
- Browser, scriptable CLI, and console-based interfaces for local and remote interconnect switch management
- Manage entire interconnect switch through the Integrated Administrator connectors or any uplink connector
- Telnet, RMON and SNMP support; SNMP-based scripting utility with example scripts
- IGMP (internet group management protocol) multicasting and quality of service (QoS) packet prioritization
- TFTP support for rapid deployment of multiple interconnect switches and to provide backup and restore capabilities
- Industry-standard design compatible with industry-standard network components from leading network manufacturers
- Fully pre-configured for rapid deployment and immediate operation in HP e-Class Blade PC Enclosure

For more information on the C-GbE Interconnect Switch, please visit the Web site at:
http://h18000.www1.hp.com/products/servers/proliant-bl/e-class/interconnect-switch.html.

Standard Features

HP Integrated Administrator Features

- Out-of-band local console and remote network access to the blade enclosure and all 20 blade PCs via (one) RJ-45 10/100BaseT Fast Ethernet and (one) RS-232 management connectors
- Provides local and remote access to the C-GbE Interconnect Switch command console
- Remotely power on/off/reboot blade PCs and enclosures
- Remotely toggle on/off unit identification (UID) LEDs of blade PCs and enclosures
- Monitors and controls the enclosure fans, temperature sensors, power supplies, interconnect switch and blade PC status
- Connect to each blade PC's serial text console for enabling full control over blade PC's Power-On Self Test (POST) and boot process, including the ROM-Based Setup Utility (RBSU).
- User administration for up to 25 users. Blade PC bay privileges can be set on a per-user basis
- Virtual NMI button generates non-maskable interrupt for crash debug and analysis
- More than 100 scriptable commands enable automated management
- Selective enabling of all protocols, such as Telnet
- Logging of operating system console, blade PC and enclosure hardware events, user actions and invalid login attempts
- Administrator notification that a blade is warm
- Enclosure controller blade shutdown (graceful Windows shutdown) if blade overheats
- Emergency blade shutdown in the event of a critical temperature fault
- Enclosure Link (2) connectors reserved for future use.

CAUTION: The enclosure link (RJ-45) connectors on the interconnect tray are not to be used. Connecting an external device to these enclosure link (RJ-45) connecters may damage your external device.
For more information on the Integrated Administrator, please visit the Web site at:
http://h18000.www1.hp.com/products/servers/proliant-bl/e-class/integrated-admin.html.

Service and Support

HP Services provides a wide range of service offerings, including a three-year, limited parts warranty on the HP bc1000 blade PC.
CAUTION: Do not ship the blade PCs and enclosure while inside the rack without first installing the e-Class Enclosure Shipping Bracket (part number PH555A). Failure to use the shipping bracket may cause damage to the blade PC and/or enclosure, thereby voiding the warranty.

The HP e-Class Blade PC Enclosure has a three-year, limited warranty on parts, labor and on-site support.

Warranties are fully supported by a network of resellers and service providers in over 160 countries. HP warranty assistance is available 7x24, toll free in the United States and Canada. Other additional support services may be covered under warranty or available for an additional fee.

A full range of HP Care Pack packaged hardware and software services:

- Add labor or on-site service for the blade PC
- Installation and start up
- Extended coverage hours and enhanced response times
- System management and performance services
- Availability and recovery services

NOTE: For more information, customer/resellers can contact http://www.hp.com/services/carepack.
NOTE: Certain restrictions and exclusions apply. Consult the Customer Support Center at 1-800-567-1616 for details.

Models

bc1000 blade PC	Processor	1.0-GHz Transmeta Efficeon TM8000
DS658A (1 pack)	Cache Memory	1024K L2
	Memory	512-MB DDR SDRAM PC2700 (333-MHz)
	Network Controller	Two Broadcom 5705F 10/100 Integrated NICs
	Hard Drive	40-GB Ultra ATA/100 5400 rpm
	Form Factor	Plugs vertically into HP e-Class Blade PC Enclosure

bc1000 blade PC	Processor	1.0-GHz Transmeta Efficeon TM8000
DS659A (10 pack)	Cache Memory	1024K L2
	Memory	512-MB DDR SDRAM PC2700 (333-MHz)
	Network Controller	Two Broadcom 5705F 10/100 Integrated NICs
	Hard Drive	40-GB Ultra ATA/100 5400 rpm
	Form Factor	Plugs vertically into HP e-Class Blade PC Enclosure

Options

Enclosure and Switch	HP e-Class Blade PC Enclosure (includes 20 licenses for ProLiant Essentials Rapid Deployment Pack at 50% of the standard per-node license list price)	DW366A
	Enclosure Shipping Bracket Kit NOTE: When shipping an enclosure in a rack, shipping brackets must be installed to the rack.	
	C-GbE Interconnect Switch (includes Integrated Administrator module)	DW367A

Memory	512-MB DDR SDRAM PC2700 (333-MHz) Option Kit (1 x 512 MB)	PA715A

Miscellaneous	PS/2 Mouse	DD440B
	PS/2 Keyboard	DT527A
	TFT5600 Rackmount Keyboard and Monitor	221546-001
	TFT721OR 17-inch Rackmount Monitor	348373-B21
	Integrated Keyboard and Drawer	257054-001
	External USB MultiBay Caddy	DC373A#ABA
	Third-party Rail Kit for HP Input Devices	287139-B21
	Telco Rail Kit for HP Input Devices	287138-B21
	MultiBay 24X CD-ROM	217396-930
	Graphics Diagnostics Card (5 pack)	DV300C

UPS and PDU Power Cord Matrix	Please see the UPS and PDU cable matrix that lists cable descriptions, requirements, and specifications for UPS and PDU units: ftp://ftp.compaq.com/pub/products/servers/ProLiantstorage/power-protection/powercordmatrix.pdf.	

Uninterruptible Power Systems – Rack	HP UPS R1500 XR (1440VA, 1340 Watt), Low Voltage	204404-001
	HP UPS R3000 XR (2880VA, 2700 Watt), Low Voltage	192186-001
	HP UPS R3000 XR (3000VA, 2700 Watt), High Voltage	192186-002
	Rack-Mountable UPS R6000 (6000VA, 6000 Watt) High Voltage NOTE: The UPS R6000 has a hardwired input.	347207-001
	UPS R12000 XR N+ x (200-240V) (hardwired) NOTE: The UPS R12000 XR has a hardwired input and output.	207552-B22

Options

UPS Options	SNMP Serial Port Card	192189-B21
	NOTE: Supports tower and rack UPS XR models ranging from 1000 – 3000VA.	
	Six Port Card	192185-B21
	NOTE: Supports tower and rack UPS XR models ranging from 1000 – 3000VA.	
	High to Low Voltage Transformer (250VA)	388643-B21
	NOTE: Supports R6000 UPS series only. 2.5 amps @ 125 Volts max output across two NEMA 5-15.	
	Extended Runtime Module, R1500 XR	218971-B21
	NOTE: 2U each, two ERM maximum.	
	Extended Runtime Module, R3000 XR	192188-B21
	NOTE: 2U each, one ERM maximum.	
	Extended Runtime Module, R5500 XR	326564-B21
	NOTE: 3U each, two ERM maximum.	
	Extended Runtime Module, R6000	347224-B21
	NOTE: 3U each, two ERM maximum.	
	Extended Runtime Module, R12000 XR, 4U	217800-B21
	NOTE: 4U each, two ERM maximum.	
	R12000 XR BackPlate Receptacle Kit, (2) L6-30R	325361-001
	NOTE: The R12000 XR BackPlate Kit has a hardwired input.	
	R12000 XR BackPlate Receptacle Kit, (2) IEC-309R	325361-B21
	NOTE: The R12000 XR BackPlate Kit has a hardwired input.	
	SNMP-EN Adapter	347225-B21
	NOTE: Supports R6000 UPS series only.	
	Multi-Server UPS Card	123508-B21
	NOTE: Supports R6000 UPS series only.	
	Scalable UPS Card	123509-B21
	NOTE: Supports R6000 UPS series only.	

Rack-Mountable PDUs – 1U/0U (Up to 12 outlets) **NOTE:** 0U mounting brackets shipped with the unit (separate option kit for 1U mounting).	HP Power Distribution Unit-16A (200 to 240V)	207590-B21
	NOTE: The 16A PDU also connects to the high volt models of the UPS R3000 XR (need cable PN 340653-001) and the UPS R6000 models. Cable PN 340653-001 required if connecting to UPS R3000 XR (192186-002-High Volt model only).	
	HP Power Distribution Unit-40A (200 to 240V)	207590-B23
	NOTE: Please see the following Power Distribution Unit (Zero-U/1U PDU) QuickSpecs for additional options, including cables: http://h18000.www1.hp.com/products/quickspecs/10838_na/10838_na.HTML	

Options

Modular PDUs 1U/0U (Up to 32 outlets)	Modular Power Distribution Units (mPDU), High Volt Model, 16A (200-240 VAC) **NOTE:** This model has a detachable input power cord and is adaptable to country specific requirements. The 16A PDU also connects to the high volt models of the UPS R3000 XR and R6000 models. Cable P/N 340653-001 required if connecting to UPS R3000 XR (192186-002-High Volt model only).	252663-B24
	Modular Power Distribution Units (mPDU), High Volt Model, 24A (200-240 VAC)	252663-D72
	Modular Power Distribution Units (mPDU), Low Volt Model, 24A (100-127 VAC)	252663-D71
	Modular Power Distribution Units (mPDU), High Volt Model, 40A (200-240 VAC) **NOTE:** This mPDU (252663-B21), 40A model has a hardwired input. **NOTE:** Please see the following Modular Power Distribution Unit (Zero-U/1U Modular PDUs) QuickSpecs for additional options including shorter jumper cables and country specific power cords: http://h18000.www1.hp.com/products/quickspecs/11041_na/11041_na.HTML	252663-B21

PDU Options	Third Party PDU Mounting Kit **NOTE:** This kit allows you to mount the Modular PDUs in racks other than the 9000/10000 Series racks (any racks using the standard 19" rail). For more details please refer the Modular PDU QuickSpecs.	310777-B21

Enterprise Configurator	Please see the CO for configuration assistance at: http://www.hp.com/products/configurator.

HP Rack 10000 Series (Graphite Metallic)	S10614 (14U) Rack Cabinet – Shock Pallet	292302-B22
	HP Rack 10647 (47U) – Pallet	245160-B21
	HP Rack 10647 (47U) – Crated	245160-B23
	HP Rack 10642 (42U) – Pallet	245161-B21
	HP Rack 10642 (42U) – Shock Pallet	245161-B22
	HP Rack 10642 (42U) – Crated	245161-B23
	HP Rack 10636 (36U) – Pallet	245162-B21
	HP Rack 10636 (36U) – Shock Pallet	245162-B22
	HP Rack 10636 (36U) – Crated	245162-B23
	HP Rack 10622 (22U) – Pallet	245163-B21
	HP Rack 10622 (22U) – Shock Pallet	245163-B22
	HP Rack 10622 (22U) – Crated	245163-B23
	HP Rack 10842 (42U) – 800 mm wide – Pallet	257415-B21
	HP Rack 10842 (42U) – Crated	257415-B22
	NOTE: -B21 (pallet) used to ship empty racks shipped on a truck -B22 (shock pallet) used to ship racks with equipment installed (by custom systems, VARs and Channels) -B23 (crated) used for air shipments of empty racks **NOTE:** Not all HP equipment is qualified to be shipped in the Rack 10000 series. **NOTE:** Please see the Rack 10000 QuickSpecs for Technical Specifications such as height, width, depth, weight, and color: http://h18000.www1.hp.com/products/quickspecs/10995_na/10995_na.HTML For additional information regarding Rack Cabinets, please see the following URL: http://h18000.www1.hp.com/products/servers/proliantstorage/racks/index.html.	

Options

Rack Options for HP Rack 10000 Series	Rack Blanking Panels – Graphite (Multi)	253214-B26
	NOTE: Contains one each of 1U, 2U, 4U and 8U.	
	Rack Blanking Panels – Graphite (1U)	253214-B21
	NOTE: The Rack Blanking Panels Kit contains 10 each of (1U).	
	Rack Blanking Panels – Graphite (2U)	253214-B22
	NOTE: The Rack Blanking Panels Kit contains 10 each of (2U).	
	Rack Blanking Panels – Graphite (3U)	253214-B23
	NOTE: The Rack Blanking Panels Kit contains 10 each of (3U).	
	Rack Blanking Panels – Graphite (4U)	253214-B24
	NOTE: The Rack Blanking Panels Kit contains 10 each of (4U).	
	Rack Blanking Panels – Graphite (5U)	253214-B25
	NOTE: The Rack Blanking Panels Kit contains 10 each of (5U).	
	600mm Stabilizer Kit – Graphite	246107-B21
	Baying Kit for Rack 10000 series (Carbon)	248929-B21
	42U Side Panel – Graphite Metallic	246099-B21
	110V Fan Kit (Graphite)	257413-B21
	NOTE: Roof Mount Includes power cord with IEC320-C13 to Nema 5-15P.	
	220V Fan Kit (Graphite)	257414-B21
	NOTE: Roof Mount Includes power cord with IEC320-C13 to Nema 6-15P.	
	36U Side Panel – Graphite Metallic	246102-B21
	47U Side Panel – Graphite Metallic	255486-B21
	9000/10000 Series Offset Baying Kit (42U)	248931-B21
	NOTE: This kit can be used to connect 9000 and 10000 series racks of the same U height together. Kit contents include hardware for connecting racks and a panel to cover the 100mm gap at the rear of the two racks.	

Cable Management	FC Cable Routing Spool – box of 12	293357-B21
	Rail-to-Rail FC Cable Routing	293358-B21
	Side Rail FC Routing – box of 6	293359-B21
	Compaq Networking Cable Management Kit	292407-B21
	Cable Management D-Rings Kit	168233-B21

Rack Options for Rack 10000 Series	Monitor Utility Shelf	303606-B21
	Ballast Option Kit	120672-B21
	100kg Sliding Shelf	234672-B21
	Rack Rail Adapter Kit (25" depth)	120675-B21
	9000/10000 Grounding Kit	260457-B21
	100-kg Shelf Kit	234672-B21
	NOTE: This 100Kg Shelf Kit (PN 234672-B21) supports the Rack 10000 and 9000 series only.	

Options

Rack Options for HP, Third Party and Telco racks	Telco rack-mounting hardware kit for HP e-Class Blade PC Enclosure	266076-B21
	Enclosure Shipping Bracket Kit	293119-B21

NOTE: When shipping an enclosure in a rack shipping brackets must be installed to the rack.

NOTE: For more information on rack and rack options, please visit the following url: http://h18000.www1.hp.com/products/servers/proliantstorage/rack-options/index.html.

Memory

HP bc1000 blade PC

Standard Memory

512-MB 333-MHz DDR SDRAM (1x512 MB SODIMM) installed. (NOTE: 32 MB of system RAM is reserved for processor usage.)

Standard Memory Plus Optional Memory

Up to 1024 MB of DDR SDRAM is available with the installation of optional DDR SDRAM memory expansion kits (sold separately).

Memory		Slot	
		1	2
Standard	512 MB	Empty	512 MB
Maximum	1024 MB	512 MB	512 MB

Technical Specifications

HP bc1000 blade PC	Dimensions	Height	4.7 in (11.94 cm)
		Width	0.8 in (2.03 cm)
		Depth	15.5 in (39.37 cm)
	Weight	Maximum	2.2 lb (1.0 kg)
	Temperature[1]	Operating	50° to 95° F (10° to 35° C)
		Non-operating shipping	-40° to 140° F (-40° to 60° C)
		Non-operating storage	-4° to 140° F (-20° to 60° C)
	Relative humidity[1] (noncondensing)	Operating	10% to 90%
		Non-operating shipping	10% to 90%
		Non-operating storage	10% to 95%
	LEDs (Top to bottom)	Unit identification	Off = off
			Steady blue = blade identified
			Blinking blue = being accessed remotely
		Health	Off = off
			Green = health good
			Amber = degraded or power up prohibited by the Integrated Administrator
			Blinking or steady red = critical
		NIC 1	Off = off
			Green = linked to network
			Blinking green = Activity on network
		NIC 2	Off = off
			Green = linked to network
			Blinking green = activity on network
		Drive activity	Off = No drive activity
			Blinking green = drive activity
		Power	Off = no AC power to blade or enclosure
			Amber = Enclosure on and in good health
			Green = blade power on

NOTE 1: Operating temperature has an altitude derating of 34° F (1° C) per 1,000 ft (304.8 m). No direct sunlight. Storage maximum humidity of 95% is based on a maximum temperature of 112° F (45° C). Minimum pressure for storage is 70 KPa.

40-GB Ultra ATA/100 Hard Drive	Capacity	40 GB	
	Interface	Ultra ATA 100	
	Transfer rate synchronous (maximum)	100 MB/s	
	Seek time (typical reads, including settling)	Single track	1.5 ms
		Average	12 ms
		Maximum	22 ms
	Rotational speed	5400 rpm	

Technical Specifications

Broadcom 5705F 10/100 Integrated NIC	Network interface	10Base-T/100Base-TX	
	Compatibility	IEEE 802.3/802.3u compliant	
	Data transfer method	32-bit bus-master PCI	
	Features	NIC 1 WOL enabled and PXE compliant	
	Network transfer rate	10Base-T (half-duplex)	10 Mb/s
		10Base-T (full-duplex)	20 Mb/s
		100Base-TX (half-duplex)	100 Mb/s
		100Base-TX (full-duplex)	200 Mb/s
	Connector	Mates into enclosure center wall assembly	
	Cable support	10Base-T	Categories 3, 5, or 6 UTP; up to 328 ft (100 m)
		100Base-TX	Category 5 or 6 UTP; up to 328 ft (100 m)

Enclosure	Dimensions	Height (3U)	5.25 in (13.34 cm)
		Width	19 in (48.26 cm)
		Depth	27 in (68.58 cm)
	Weight (with interconnect tray)	No blade PCs	59 lb (26.76 kg)
		20 blade PCs	103 lb (46.7 kg)
	Rated input (autosensing)	Voltage	Minimum: 90 VAC Maximum: 264 VAC Nominal: 100 to 120 VAC or 200 to 240 VAC
		Frequency	47 to 63 Hz
		Current	11.7 A at 90 VAC 8.5 A at 120 VAC 4.3 A at 240 VAC
		Power	1000 W
	BTUs	Per hour	3416
	Temperature[1]	Operating	50° to 95° F (10° to 35° C)
		Shipping, 72 hours	-40° to 140° F (-40° to 60° C)
	Relative humidity (noncondensing)	Operating	10% to 90%
		Non-operating	10% to 95%
	Management	Enclosure self recovery Health logs Redundant power supply utility Automatic System Recovery (ASR)	
	High availability	Redundant hot-plug power supplies Redundant hot-plug fans	

NOTE 1: Operating temperature has an altitude derating of 34° F (1° C) per 1,000 ft (304.8 m). No direct sunlight. Storage maximum humidity of 95% is based on a maximum temperature of 112° F (45° C). Minimum pressure for storage is 70 KPa.

Technical Specifications

Enclosure Hot-Plug Power Supply	Dimensions	Height	3.579 in (9.14 cm)
		Depth	10.24 in (28.45 cm)
		Width	4.47 in (11.43 cm)
	Weight	6.5 lb (2.95 kg)	
	Rated input	Voltage (autosensing)	100 to 127 VAC (200 to 240 VAC)
		Frequency	47 to 63 Hz
		Current	8.5 A at 120 VAC (4.3 A at 240 VAC)
		Power	1000 W
		Maximum peak power	1167 W
	Rated output	Voltage/current	5.01 V - 0.5 A ~ 34 A
			3.33 V - 0.5 A ~ 36 A
			12.1 V - 0.5 A ~ 38 A
			5 Vaux - 0.2 A ~ 8 A
		Power RMS	600 W
		Maximum peak power	700 W for 2 minutes
	Temperature[1]	Operating	5° to 55° F (10° to 35° C)
		Non-operating, shipping	-40° to 85° F (-40° to 60° C)
	Relative humidity[1] (noncondensing)	Operating	10% to 90%
		Non-operating	10% to 95%
	Dieletric voltage withstand	Input to output	2000 VAC minimum
		Input to ground	1500 VAC minimum

NOTE 1: Operating temperature has an altitude derating of 34° F (1° C) per 1,000 ft (304.8 m). No direct sunlight. Storage maximum humidity of 95% is based on a maximum temperature of 112° F (45° C). Minimum pressure for storage is 70 KPa.

C-GbE Interconnect Switch	General	Two 24-port Managed Layer 2 Ethernet switches for network cable reduction; fully pre-configured for immediate operation
	Performance	4.0 Gbps Switching bandwidth
		12 million pps aggregate throughput (64-byte packets)
		Full-wire speed for all connections
	Forwarding mode	Store and forward
	MAC addresses	16,382; MAC address based filtering and MAC address packet priority configuring
	Memory	64 MB Main
		12 MB Flash
		32 MB Packet Buffer

Technical Specifications

Ports	Four RJ-45 10/100/1000 T/TX/T Gigabit Ethernet uplink ports for customer use	
	Forty 10/100 T/TX fast Ethernet downlink ports dedicated to blade PC to interconnect switch network connections	
	Two 10/100 T/TX Fast Ethernet ports dedicated to inter-switch module communications	
	One RS-232 DB-9 port (console connector for Integrated Administrator)	
	One 10/100 T/TX Fast Ethernet port (Network management connector for Integrated Administrator)	
	Auto-negotiation and auto-sensing with full-duplex	
Management	Web-based interface with graphical user interface	
	Console menu driven Interface via local RS-232 and Telnet	
	Scriptable command line interface (CLI)	
	SNMP v1 (RFC 1157) with scripting tool and example scripts	
	RMON v1 (RFC 1757) groups 1, 2, 3, and 9	
	Telnet (RFC 854)	
	MIB-II (RFC 1213), Bridge MIB (RFC 1493), Interface MIB (RFC 2233), 801.1Q MIB (RFC 2684), RMON1 MIB (RFC 1757) groups 1, 2, 3, and 9, Ethernet MIB (RFC1643) and HP-specific switch MIBs	
	XML human read/write configuration file	
	TFTP client (RFC 783) for backup and remote download of configuration and history log files	
	IGMP (Internet Group Management Protocol) multicasting	
	Uplink port speed and link activity LEDs	
	Simple network time protocol (SNTP)	
	Broadcast, multicast, and DA-unknown packet storm control	
	BootP and DHCP client support	
	Port mirroring	
	HP Interconnect Switch Management System and Utilities	
High availability	Dual network communication paths using redundant, non-blocking layer 2 switch modules with redundant inter-module communication links	
	Two redundant uplink ports per each interconnect switch module	
	Spanning tree protocol for loop-free path redundancy	
Security	Multilevel user names and passwords with configurable time out period setting, IP address restriction	
IEEE standards compliance	IEEE 802.3 10Base-T Ethernet	
	IEEE 802.3u 100Base-TX Ethernet	
	IEEE 802.3ab 1000Base-T Ethernet	
	IEEE 802.1D Spanning Tree Protocol	
	IEEE 802.1p Quality of Service (QoS) Packet Prioritization	
	IEEE 802.3x Flow Control	
Form factor	Removable interconnect tray that plugs into the rear of the server blade enclosure	

Technical Specifications

Network transfer rate	10Base-T (half-duplex)	10 Mb/s
	10Base-T (full-duplex)	20 Mb/s
	100Base-TX (half-duplex)	100 Mb/s
	100Base-TX (full-duplex)	200 Mb/s
	1000Base-T (full-duplex, uplink ports only)	2000 Mb/s
Cable support	10Base-T	Categories 3, 5, or 6 UTP; up to 328 ft (100 m)
	100Base-TX	Category 5 or 6 UTP; up to 328 ft (100 m)
	1000Base-T (uplink ports only)	Category 5 or 6 UTP; up to 328 ft (100 m)